LOW ELASTIC MODULUS STRAIN GAUGES series GF

Operating temperature range
–20°C +80°C
Temperature compensation range
+10°C +80°C

Suffix code for temperature compensation materials
-50, or -70 : Plastics

For ordering, the above suffix code should be added to the basic gauge type.

P plastics

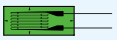
Applicable adhesives | CN | –20 ~ +80ºC

PLASTICS USE

These gauges are suited for the measurement on materials such as plastics, which have low elastic modulus compared to metal. These specially designed grid reduces the stiffening effect of the strain gauges to the specimen material, and also reduces the effect of Joule heat in the strain gauges. This series is available with self-temperature-compensation for the material having a coefficient of thermal expansion of 50 or 70×10^{-6}/°C.

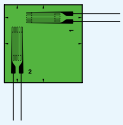
Example of type number designation
GFLA-3 -350 -50 -3LJC
- -3LJC: Length in meter and type of leadwire
- -50: Self-temperature-compensation number
- -350: Gauge resistance (Blank for 120Ω)
- GFLA-3: Basic strain gauge type, gauge length

Single element



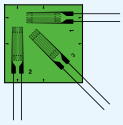
GFLA-3 — Single element

0°/90° 2-element plane Rosette



GFCA-3 — 0°/90° 2-element plane Rosette

0°/45°/90° 3-element plane Rosette



GFRA-3 — 0°/45°/90° 3-element plane Rosette

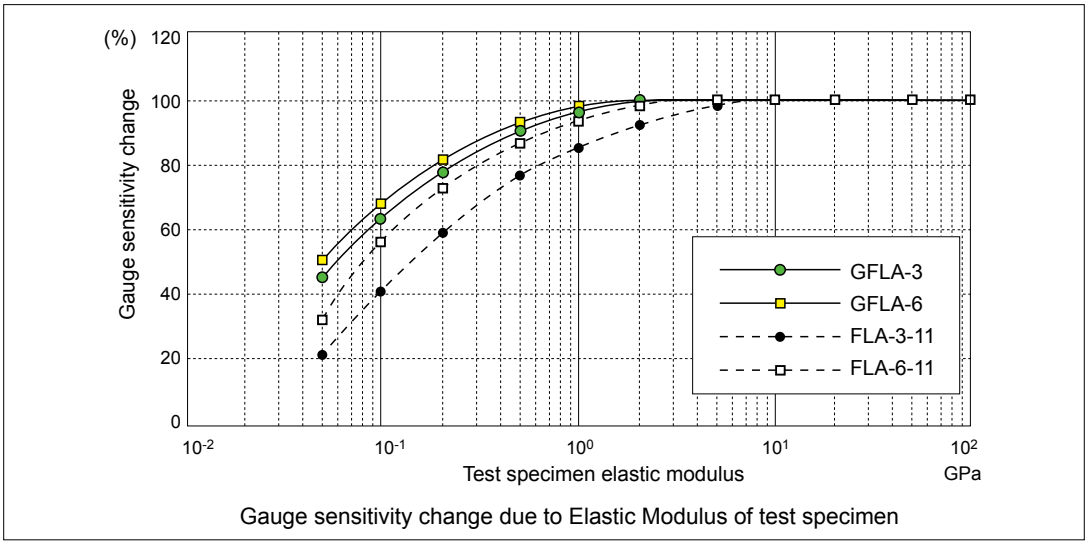
Each package contains 10 gauges.

Basic type	Gauge size L	Gauge size W	Backing L	Backing W	Resistance Ω
GFLA-3	3	2.3	9.5	4	120
GFLA-6	6	2.5	14	5	120
GFLA-3-350	3	2.9	10	5	350
GFLA-6-350	6	2.7	15	5	350
GFCA-3	3	1.4	10.5	10.5	120
GFCA-3-350	3	2.9	15	15	350
GFRA-3	3	1.4	10.5	10.5	120
GFRA-3-350	3	2.9	15	15	350

Point

Effect of low elastic modulus of specimen

When a strain gauge is installed on materials such as plastics that have low elastic modulus, the stiffness of the strain gauge causes to disturb the stress distribution around the strain gauge, thus resulting in reduced strain sensitivity. This is referred to as the strain gauge stiffening effect and it gets larger as the elastic modulus of specimen gets smaller. For materials with an elastic modulus of 2.9GPa (approx. 300kgf/mm²) or less, a preparatory test must be conducted to correct the gauge factor.



Gauge sensitivity change due to Elastic Modulus of test specimen

Effect of Joule heat

The GF series gauges have a specially designed grid to reduce the effect of Joule heat. Though an allowable current is 30mA or less for metallic specimens in general, a current of 10mA or less is recommended for plastic specimen.